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Draft
ADWHeelon
22 Oct 63

MEMORANDUM FOR: Director, National Reconnaissance Office

SUBJECT: CORONA Improvement Program

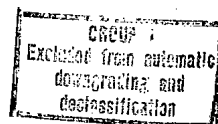
REFERENCE: DNRO Memorandum to DCI of 11 September 1963
DNRO Memorandum to DCI of 4 October 1963

1. The Purcell Panel recommended that rather than proceeding with a new camera system that we improve our only satellite search system, CORONA, so as to yield its peak resolution performance all the time. This report suggested a number of technical improvements in the basic CORONA system over and above those incorporated in ^{MISSION} 9056 (ie titanium/invar drum) which the Panel felt would reduce the spread in the resolution distribution curve.

2. It is my understanding that General Greer's ^{PROGRAM A} people were instructed by the NRO to implement this recommendation. With the contractors involved, General Greer developed a list of sub system improvements which were represented as providing a technical solution to the wide distribution of resolution; Both in briefings to General Carter and his staff and in your memorandum to me of 11 September 1963.

50X1

3. In August, I directed the CIA/DD/S&T people to play an active, constructive role in implementing the Purcell Panel

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report. Because of apparent misunderstanding ⁱⁿ of the NRO staff and on the West Coast they were forced to conduct an independent ^{the} and somewhat slower analysis of CORONA resolution problem.

In retrospect it seems most fortunate that this parallel effort was created since they addressed themselves first to analyzing the basic sources of resolution degradation and then to measuring the actual distribution of resolution in film from CORONA missions. As I understand the matter, the actual distribution is much broader than anyone had imagined, including the Purcell Panel.

4. This spread apparently cannot be accounted for by analysis of any of the error sources to which General Greer's improvement program was directed, {and the CORONA Configuration Control Board rejected this program on 20 September.} As soon as the results of this study began to emerge I directed that they be made available to you and your staff in a most preliminary form. This took place on 17 September. The results of this study have also subsequently been briefed individually to each of the members of the Purcell Panel who unanimously concur in its conclusions.

5. Under the circumstances I heartily endorse your decision to cancel or withhold much of the CORONA improvement program proposed by General Greer's organization. Some of the

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proposed actions are desirable for other reasons and I leave it to you to balance the reliability danger of subsystem innovations ^{AGAINST} ~~of~~ the increased performance potential. However, I want to be quite clear that we do not confuse the decision process by considering that the items presented in your 4 October memorandum will alter the resolution problem in any measurable way. I am convinced by what I have heard and read on this problem in the last few months that one must understand this problem thoroughly before one can cure it.

6. For this reason I was glad to note your enthusiasm for proceeding with a "specific detailed quantitative analysis of a recent good quality CORONA mission with the intent of assessing quantitatively the separate contributions of various system elements and atmospheric SEEINGS conditions". It was my understanding that Dr. Wheelon proposed that just such a program be carried out in DD/S&T at the time of the original presentation (17 September) to you ^{AND} ~~of~~ the NRO staff. This 50X1
^{STUDY}
~~organization~~ was estimated to cost and 50X1
 was to involve continuous participation by a small group of senior technical people from ~~TRK, Lockheed and Eastman Kodak~~ ^{AND OTHER CONTRACTORS.}
^{the appropriate contractors.}
 This working party was to be managed by CIA staff personnel from the DD/S&T and carried out at NPIC where the essential data base is exploited and stored.

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7. It is my desire that this effort be authorized and vigorously supported by the NRO. Its assignment to CIA is important in my mind because these people have already demonstrated a capability for doing original analyses of this type and because they are not harnessed to a satellite launch schedule. Of course, it is important that technically qualified members of your staff play an active role in this effort and I would hope one or two officers could be made available.

8. This leads me to another point that has been very much on my mind lately. There are a number of distinct applications of satellite reconnaissance for intelligence purposes: (a) Search, (b) technical intelligence, (c) geodesy and (4) indications. It seems to me that much of the effort and imagination of NRO in the last few ~~years~~ years has been devoted to the technical intelligence ^{or} ~~on~~ high resolution 50X1 spotting problem; viz., GAMBIT, LANYARD, etc. At the same time we seem to have developed no attractive ideas for a successor to CORONA, which continues to provide our only ~~national~~ search capability.

9. I have, therefore, directed the CIA people to explore the needs and possibility of a second generation search system.

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They are to work closely with the consumers here at CIA and elsewhere in the community and are to work closely with the photographic exploitation people at NPIC ~~taking special recognition of the new possibilities for photo interpretation,~~ so as to come up with a specific proposal for a new satellite system. However, it appears that one cannot provide such a solution until the results of the CORONA resolution working party are thoroughly understood. The CIA people maintain that the limit to which we can push the present system and the ways *In which* one can circumvent such limits by working in other parts of the electromagnetic spectrum need to be established first, and I am inclined to agree. This consideration ^{GIVES} ~~does attach~~ double weight to the CORONA working party effort, both as a basis for tightening up the present system and for designing its successor. Naturally I attach the greatest importance to this effort and trust you will support this enterprise with all the resources of your office.] ?

DCI

cc: Gilpatric

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1. What steps are taken to improve the existing CORONA system?
 - a. Troubles with the CORONA-J
 - b. Improve resolutions
 - c. Improvements in faster film
 - d. Improvements in film processing - Eastman vs. Air Force facilities
2. What improvements are anticipated in the existing GAMIT program?
3. What do we do about a higher resolution search follow-on to the CORONA?
4. What do we do to improve resolution target systems as a follow-on to the GAMBIT?

NOTE: With respect to the above 2 questions, who is responsible? What contractors? What money is provided? What is the time schedule?

5. Disposition of the OXCART?

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